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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,153	11/29/2001	Chieng-Hwa Lin	016295.0732	5467

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EXAMINER

HA, THANH T

ART UNIT PAPER NUMBER

2194

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,153

Applicant(s)

LIN ET AL.

Examiner

Ha Thanh

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-20 are pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-11, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (hereafter Keller) (U.S. Patent 6289396 B1), in view of applicant admitted prior art (AAPA), further in view of Sprecher (U.S. Patent 6425038).
3. As to claim 1, Keller teaches the invention substantially as claimed including a method for establishing a device driver in an operating system (abstract, line 1), comprising the steps of:
 - providing a device driver having at least one module in executable form and a service layer [col. 9, lines 1-3];
 - wherein the compiled service layer acts as an interface between the kernel of the operating system and at least one executable module of the device driver [col. 8, lines 6-11].

4. Keller is silent about the device driver is in an open source operation system.

However, AAPA teaches "the Linux open source operating system is a well-known standardized version that is marketed by Red Hat, Inc. of Durham, North Caroline; and have come into more common use in computer systems" (spec. p.2, lines 5-11).

5. It would have been obvious to one of ordinary skill in the art to combine the teaching of Keller et al. and AAPA because AAPA's would improve the flexibility of Keller et al's system by making it easy to modify to accommodate the needs or desires of the user thereby make the product more attractive and more marketable to the user.
6. Keller and AAPA do not specifically teach compiling the service layer against the kernel of the operating system. However, Sprecher teaches compiling the service layer against the kernel of the operating system [col. 5, lines 17-24].
7. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combine the teaching of Keller, AAPA and Sprecher because Sprecher's teaching of compiling the service layer against the kernel of the operating system would increase portability of the service layer between different operating system.

8. As to claim 2, Keller teaches associating the naming convention of function calls in the kernel to the naming convention of expected function calls in the device driver [col. 3, lines 58-61].
9. As to claim 3, Keller teaches linking the compiled service layer to the at least one module in executable form to form the device driver [col. 8, lines 11-14].
10. As to claim 4, Keller teaches a method as set forth in claim 3, further comprising the step of storing the device driver in memory [col. 7, lines 61-62].
11. As to claim 5, Keller teaches providing a device driver having multiple modules in executable form, each of the modules associated with hardware architecture of a computer system [col. 1, lines 24-28].
12. As to claims 6-7, they are rejected for the same reason as claims 3-4 above.
13. As to claim 8, it is rejected for the same reason as claim 1 above. In addition, Keller teaches the invention substantially as claimed including a computer system comprising:
 - a processor, a memory, an operating system having a kernel;
 - and a device driver [col. 38, lines 34-38].

The device driver comprising,

an executable module compiled from a service layer, and

at least one executable module,

wherein the executable module compiled from the service layer

provides an interface between the kernel of the operating system and the

at least one executable module such that the executable module compiled

from the service layer receives kernel-specific function calls from the

kernel of the operating system [col. 39, lines 15-35].

14. As to claim 9, this is a computer system claim that corresponds to the method claim 4. Therefore, this claim is rejected for the same reason as claim 4 above.

15. As to claim 10, this is a computer system claim that corresponds to the method claim 5. Therefore, this claim is rejected for the same reason as claim 5 above.

16. As to claim 11, this is a computer system claim that corresponds to the method claim 2. Therefore, this claim is rejected for the same reason as claim 2 above.

17. As to claim 13, this is a method for loading a device driver in a computer system claim that corresponds to the method claim 1 and method claim 3. Therefore, it is rejected for the same reason as claims 1 and 3 above.

18. As to claim 14, this is a method of loading a device driver claim that corresponds to computer system claim 11. Therefore, it is rejected for the same reason as claim 11 above.

19. As to claim 15, Keller does not specifically teach recompiling the open source service layer if it is determined that the kernel of the open source service layer has been modified. However, Keller discloses an operating system reloads the state of the device driver and hardware controller consistent with the state of a new mode of operation [col. 3, lines 2-4]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to know that application has to be recompiled in order to be operative in a new or modified environment system.

20. As to claim 16, this is a method for loading a device driver claim that corresponds to the method of claim 3. Therefore, it is rejected for the same reason as claim 3 above.

21. As to claim 17, Keller does not specifically teach the step of determining, prior to compilation of the open source service layer, whether a precompiled device driver exists that is associated with the kernel of the operating system and loading the precompiled device driver if such a device driver exists. It would have been obvious to one of ordinary skill in the art at the time of invention was

made to determine whether a precompiled device driver associated with the kernel of the operating system existed and load it prior to compiling the open source service layer. One of the ordinary skill in the art would have been motivated to check for the existence of a precompiled device driver and load it before compiling to save compiling time and computational cycles, thereby allowing the computer system to operate more efficiently.

22. As to claim 18, Keller teaches a method as set forth in claim 13, where in the function calls passed between the compiled open source service layer and the precompiled driver modules are specific to the hardware architecture of the computer system [col. 25, lines 38-40]. Keller does not specifically teach the function calls passed between the kernel of the operating system and the compiled open source service layer are not specific to the hardware architecture of the computer system. However, Keller said that his invention is to provide a flexible, modular device driver architecture that can provide independent hardware configuration options [col. 3, lines 14-17]. It would have been obvious to one ordinary skill in the art at the time the invention was made, to make function calls passed between the kernel and the service layer hardware architecture independent using the teachings and motivation set forth in Keller.

23. As to claim 19, it is rejected for the same reason as claim 15 above.

24. As to claim 20, this is method for loading a device driver claim that corresponds to the method of claim 11. Therefore, it is rejected for the same reason as claim 11 above.

25. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (hereafter Keller) (U.S. Patent 6289396 B1), in view of AAPA, and Sprecher (U.S. Patent 6425038) as applied to claims 1 and 11 above, and further in view of Broman et al. (hereafter Broman) (U.S. Patent 5754858).


26. As to claim 12, Keller, AAPA, and Sprecher do not specifically teach the name convention comprises the use of a suffix for the naming of function calls, the suffix providing a naming convention that is specific to the kernel of the operating system. However, Broman teaches a naming convention in which a three-letter suffix is appended to the template name [col. 17, lines 42-44]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Keller et al., AAPA, Sprecher, and Broman et al. because Broman et al's step of using the suffix for the naming of function calls that are specific to the kernel would make function calls more understandable by making them easier to read and maintain. They can also give information about the function of the identifier that can be helpful in understanding the calls.

Conclusion

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha,Thanh whose telephone number is 571-272-7220. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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SUPERVISORY PATENT EXAMINER
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Thanh Ha
Patent Examiner